



## DEMANDE INTERNATIONALE PUBLIÉE EN VERTU DU TRAITE DE COOPERATION EN MATIERE DE BREVETS (PCT)

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<p>(54) Title: <b>COSMETIC COMPOSITION COMPRISING AT LEAST A WAX AND AT LEAST A CERAMIDE COMPOUND AND METHODS</b></p> <p>(54) Titre: <b>COMPOSITION COSMETIQUE COMPRENANT AU MOINS UNE CIRE ET AU MOINS UN COMPOSE DE TYPE CERAMIDE ET PROCEDES</b></p> <p>(57) Abstract</p> <p>The invention concerns a cosmetic composition for treating keratinous materials, in particular human hair, comprising at least a wax with a melting point ranging between 70 and 85 °C and whereof at least 80 % of the carbon chains contain more than 40 carbon atoms and at least a ceramide-type compound. The invention also concerns a treatment method using said composition.</p> <p>(57) Abrégé</p> <p>La présente invention a trait à une composition cosmétique pour le traitement des matières kératiniques, en particulier des cheveux humains, comprenant au moins une cire ayant un point de fusion compris entre 70 et 85 °C et donc au moins 80 % des chaînes carbonées possèdent plus de 40 atomes de carbone et au moins un composé de type céramide ainsi qu'au procédé de traitement à l'aide de cette composition.</p>		

**COSMETIC COMPOSITION COMPRISING AT LEAST ONE WAX AND AT  
LEAST ONE CERAMIDE-TYPE COMPOUND AND METHODS**

The present invention relates to a cosmetic composition for the treatment of keratinous materials  
5 such as hair, comprising at least one particular wax and at least one ceramide-type compound and to the method of nontherapeutic treatment using this composition.

Hair formulations which make it possible to  
10 treat hair damaged by adverse weather conditions or physical (blow drying, combing, and the like) or chemical (dyeing, permanent waving, and the like) hair treatments are already known in the state of the art. There have already been used for this purpose various  
15 waxes which have the advantage of improving the cosmetic properties, inter alia the disentanglement and softness of wet and dry hair, and also of protecting the hair fibers from these attacks. However, these waxes have properties which are still inadequate and  
20 tend, for example, to make the hair heavy and to make it rough when treatments are superimposed.

There are also known ceramides and glycoceramides which have already been combined with cholesterol esters with the aim of protecting the hair  
25 fiber. The application of the latter compositions or of the ceramides alone to the hair leads nevertheless to inadequate cosmetic performances, both on wet hair and on dry hair.

Moreover, during mechanical treatments such as blow drying, the hair is damaged by the heat of the dryer and the passage of the brush through the hair in order to shape the hair.

5 Many hair strands are thus broken during blow drying. Compositions have therefore been sought which make it possible to protect the hair from this breaking during these attacks.

Now, the applicant has discovered,  
10 surprisingly, that by using compositions containing a particular wax in combination with ceramide-type compounds, a substantial improvement is observed in cosmetic performances both on wet hair and on dry hair.

The applicant has observed in particular that  
15 the combination had a synergistic effect which was not simply the addition of the properties of the two components.

In particular, a very good protective effect was obtained against hair breakage during blow drying,  
20 higher than that obtained either with the wax alone, or with the ceramide-type compound alone.

The disentanglement (= ease of combing) properties are also superior to those of a composition containing only the ceramide-type compound or only the  
25 wax.

This discovery forms the basis of the present invention.

The subject of the invention is therefore a cosmetic composition intended for the treatment of keratinous materials, in particular hair, characterized in that it contains, in a cosmetically acceptable medium, at least one wax having a melting point of between 70 and 85°C and in which at least 80% of the carbon chains possess more than 40 carbon atoms, and at least one ceramide-type compound.

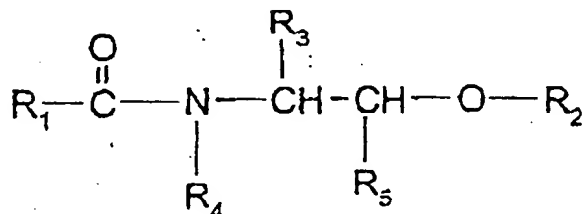
The subject of the invention is also the use of the composition defined above for protecting keratinous materials, in particular hair, from physical or chemical attacks and in particular in relation to blow drying.

These compositions also make it possible to improve the cosmetic properties, in particular the softness and the sleekness, of the hair.

According to the present invention, ceramide-type compound is understood to mean natural or synthetic ceramides and/or glycoceramides and/or pseudoceramides and/or neoceramides.

Ceramide-type compounds are for example described in the patent applications DE4,424,530; DE4,424,533; DE4,402,929; DE4,420,736; WO95/23807; WO94/07844; EP-A-0,646,572; WO95/16665; FR-2,673,179; EP-A-0,227,994; WO94/07844; WO94/24097 and WO94/10131 whose teachings are included herein by way of reference.

Ceramide-type compounds which can be used according to the present invention preferably correspond to the general formula (I):



5

in which:

- R<sub>1</sub> denotes:

- either a saturated or unsaturated, linear or branched, C<sub>1</sub>-C<sub>50</sub>, preferably C<sub>5</sub>-C<sub>50</sub>, hydrocarbon radical, it being possible for this radical to be substituted with one or more hydroxyl groups optionally esterified by an acid R<sub>7</sub>COOH, R<sub>7</sub> being an optionally mono- or polyhydroxylated, linear or branched, saturated or unsaturated, C<sub>1</sub>-C<sub>35</sub> hydrocarbon radical, it
- 10 radical, it being possible for this radical to be substituted with one or more hydroxyl groups optionally esterified by an acid R<sub>7</sub>COOH, R<sub>7</sub> being an optionally mono- or polyhydroxylated, linear or branched, saturated or unsaturated, C<sub>1</sub>-C<sub>35</sub> hydrocarbon radical, it
- 15 being possible for the hydroxyl(s) of the R<sub>7</sub> radical to be esterified by an optionally mono- or polyhydroxylated, linear or branched, saturated or unsaturated, C<sub>1</sub>-C<sub>35</sub> fatty acid;
- or a radical R''-(NR-CO)-R', R denotes a
- 20 hydrogen atom or a mono- or polyhydroxylated, preferably monohydroxylated, C<sub>1</sub>-C<sub>20</sub> hydrocarbon radical, R' and R'' are hydrocarbon radicals of which the sum of the carbon atoms is between 9 and 30, R' being a divalent radical;

- or a radical  $R_8-O-CO-(CH_2)_p$ ,  $R_8$  denotes a  $C_1-C_{20}$  hydrocarbon radical,  $p$  is an integer varying from 1 to 12;
- $R_2$  is chosen from a hydrogen atom, a saccharide-type radical, in particular a (glycosyl) $_n$ , (galactosyl) $_m$  or sulfogalactosyl radical, a sulfate or phosphate residue, a phosphorylethylamine radical and a phosphorylethylammonium radical, in which  $n$  is an integer varying from 1 to 4 and  $m$  is an integer varying from 1 to 8;
- $R_3$  denotes a hydrogen atom or a hydroxylated or nonhydroxylated, saturated or unsaturated,  $C_1-C_{33}$  hydrocarbon radical, it being possible for the hydroxyl(s) to be esterified by an inorganic acid or an acid  $R_7COOH$ ,  $R_7$  having the same meanings as above, it being possible for the hydroxyl(s) to be etherified by a (glycosyl) $_n$ , (galactosyl) $_m$ , sulfogalactosyl, phosphorylethylamine or phosphorylethylammonium radical, it being also possible for  $R_3$  to be substituted with one or more  $C_1-C_{14}$  alkyl radicals; preferably,  $R_3$  denotes a  $C_{15}-C_{26}$   $\alpha$ -hydroxyalkyl radical, the hydroxyl group being optionally esterified by a  $C_{16}-C_{30}$   $\alpha$ -hydroxy acid;
- $R_4$  denotes a hydrogen atom, a methyl or ethyl radical, an optionally hydroxylated, linear or branched, saturated or unsaturated,  $C_3-C_{50}$  hydrocarbon radical, a radical  $-CH_2-CHOH-CH_2-O-R_6$  in which  $R_6$  denotes a  $C_{10}-C_{26}$

hydrocarbon radical or a radical  $R_8-O-CO-(CH_2)_p$ ,  $R_8$  denotes a  $C_1-C_{20}$  hydrocarbon radical,  $p$  is an integer varying from 1 to 12;

-  $R_5$  denotes a hydrogen atom or an optionally mono- or polyhydroxylated, linear or branched, saturated or unsaturated,  $C_1-C_{30}$  hydrocarbon radical, it being possible for the hydroxyl(s) to be etherified by a (glycosyl) $_n$ , (galactosyl) $_m$ , sulfogalactosyl, phosphorylethylamine or phosphorylethylammonium radical;

with the proviso that when  $R_3$  and  $R_5$  denote hydrogen or when  $R_3$  denotes hydrogen and  $R_5$  denotes methyl, then  $R_4$  does not denote a hydrogen atom, or a methyl or ethyl radical.

Among the compounds of formula (I), the ceramides and/or glycoceramides whose structure is described by DOWNING in Journal of Lipid Research Vol. 35, 2060-2068, 1994, or those described in French patent application FR-2,673,179, whose teachings are included herein by way of reference, are preferred.

The ceramide-type compounds which are more particularly preferred according to the invention are the compounds of formula (I) for which  $R_1$  denotes a saturated or unsaturated alkyl derived from optionally hydroxylated  $C_{14}-C_{22}$  fatty acids;  $R_2$  denotes a hydrogen atom; and  $R_3$  denotes an optionally hydroxylated linear  $C_{11}-17$ , preferably  $C_{13}-15$ , radical.

Such compounds are for example:

- 2-(N-linoleoylamino)-1,3-octadecanediol,
  - 2-(N-oleoylamino)-1,3-octadecanediol,
  - 2-(N-palmitoylamino)-1,3-octadecanediol,
  - 5     - 2-(N-stearoylamino)-1,3-octadecanediol,
  - 2-(N-behenoylamino)-1,3-octadecanediol,
  - 2-[N-(2-hydroxypalmitoyl)amino]-1,3-octadecanediol,
  - 2-(N-stearoylamino)-1,3,4-octadecanetriol
  - 10 and in particular N-stearoylphytosphingosine,
  - 2-(N-palmitoylamino)-1,3-hexadecanediol
- or mixtures of these compounds.

Specific mixtures, such as, for example, mixtures of ceramide(s) 2 and ceramide(s) 5 according to the DOWNING classification, can also be used.

It is also possible to use the compounds of formula (I) for which  $R_1$  denotes a saturated or unsaturated alkyl radical derived from  $C_{12}$ - $C_{22}$  fatty acids;  $R_2$  denotes a galactosyl or sulfogalactosyl radical; and  $R_3$  denotes a saturated or unsaturated  $C_{12}$ - $C_{22}$  hydrocarbon radical and preferably a group  $-CH=CH-(CH_2)_{12}-CH_3$ .

By way of example, there may be mentioned the product consisting of a mixture of glycoceramides, sold under the tradename GLYCOCER by the company WAITAKI INTERNATIONAL BIOSCIENCES.



It is also possible to use the compounds of formula (I) described in patent applications EP-A-0,227,994, EP-A-0,647,617, EP-A-0,736,522 and WO94/07844.

5        Such compounds are, for example, QUESTAMIDE H (bis-(N-hydroxyethyl-N-cetyl)malonamide) sold by the company QUEST, and cetylic acid N-(2-hydroxyethyl)-N-(3-cetyloxy-2-hydroxypropyl)amide.

It is also possible to use the N-docosanoyl-  
10 N-methyl-D-glucamine described in patent application WO94/24097.

The concentration of ceramide-type compounds may vary between 0.0001% and 20% by weight approximately relative to the total weight of the  
15 composition and preferably between 0.001 and 10% approximately and still more preferably between 0.005 and 3% by weight.

The waxes which can be used according to the invention preferably have at least 80% by weight of  
20 carbon chains comprising from 40 to 65 carbon atoms and preferably more than 95% by weight.

Waxes corresponding to these characteristics are especially sunflower wax, in particular the hydrogenated sunflower wax marketed by Laboratoire  
25 Soetenaey whose melting point is about 77°C (measured using a KOFER block), whose drop point is about 70°C

and which contains more than 95% by weight of carbon chains having from 40 to 65 carbon atoms.

The concentration of wax according to the invention may vary between 0.0001% and 20% by weight approximately relative to the total weight of the composition, and preferably between 0.001 and 10% approximately and more preferably still between 0.005 and 3% by weight.

The compositions of the invention advantageously contain, in addition, at least one surfactant which is generally present in a quantity of between 0.1% and 60% by weight approximately, preferably between 3% and 40%, and more preferably still between 5% and 30%, relative to the total weight of the composition.

This surfactant may be chosen from anionic, amphoteric, nonionic and cationic surfactants, or mixtures thereof.

The surfactants which are suitable for carrying out the present invention are especially the following:

(i) Anionic surfactant(s):

Their nature is not of truly critical importance within the context of the present invention.

Thus, by way of example of anionic surfactants that can be employed, by themselves or as mixtures, in the context of the present invention, there may be

mentioned especially (nonlimiting list) the salts (in particular alkali metal, especially sodium, salts, ammonium salts, amine salts, amino alcohol salts or magnesium salts) of the following compounds: alkyl

5 sulfates, alkyl ether sulfates, alkylamido ether sulfates, alkylarylpolyether sulfates, monoglyceride sulfates, alkyl sulfonates, alkyl phosphates, alkylamidesulfonates, alkyl aryl sulfonates,  $\alpha$ -olefinsulfonates, paraffinsulfonates, alkyl

10 sulfosuccinates, alkyl ether sulfosuccinates, alkylamide sulfosuccinates, alkyl sulfosuccinamates, alkyl sulfoacetates, alkyl ether phosphates, acyl sarcosinates, acyl isethionates and N-acyltaurates, the alkyl or acyl radical of all these different compounds

15 preferably containing from 8 to 24 carbon atoms, and the aryl radical preferably denoting a phenyl or benzyl group. Among the anionic surfactants which are further usable there may also be mentioned the salts of fatty acids such as the salts of oleic, ricinoleic, palmitic

20 and stearic acids, the acids of copra oil or of hydrogenated copra oil, and acyl lactylates in which the acyl radical contains 8 to 20 carbon atoms. It is also possible to employ weakly anionic surfactants, like alkyl-D-galactosideuronic acids and salts thereof, as

25 well as the polyoxyalkylenated ( $C_6-C_{24}$ )alkyl ether carboxylic acids, the polyoxyalkylenated ( $C_6-C_{24}$ )alkylaryl ether carboxylic acids, the

polyoxyalkylenated ( $C_6-C_{24}$ )alkylamido ether carboxylic acids and their salts, in particular those containing from 2 to 50 ethylene oxide groups and mixtures thereof.

Among the anionic surfactants, the use of the salts of alkyl sulfates and of alkyl ether sulfates and mixtures thereof is preferred according to the invention.

(ii) Nonionic surfactant(s):

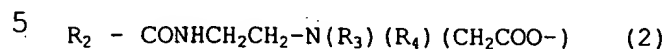
The nonionic surfactants are also compounds which are well known per se (in this respect see especially "Handbook of Surfactants" by M.R. Porter, published by Blackie & Son (Glasgow and London), 1991, pp. 116-178) and, in the context of the present invention, their nature is not of critical importance. They can thus be chosen especially from (nonlimiting list) alcohols, alpha-diols, alkylphenols or polyethoxylated, polypropoxylated or polyglycerolated fatty acids which have a fatty chain containing, for example, 8 to 18 carbon atoms, it being possible for the number of ethylene oxide or propylene oxide groups to range especially from 2 to 50 and it being possible for the number of glycerol groups to range especially from 2 to 30. The copolymers of ethylene oxide and propylene oxide and the condensates of ethylene oxide and propylene oxide with fatty alcohols may also be mentioned; the polyethoxylated fatty amides preferably containing from 2 to 30 mol of ethylene oxide, the

polyglycerolated fatty amides on average containing 1 to 5 glycerol groups and in particular 1.5 to 4, the polyethoxylated fatty amines preferably containing 2 to 30 mol of ethylene oxide, the oxyethylenated fatty acid esters of sorbitan containing from 2 to 30 mol of ethylene oxide, the fatty acid esters of sucrose, the fatty acid esters of polyethylene glycol, alkylpolyglycosides, the N-alkylglucamine derivatives, amine oxides such as the oxides of (C<sub>10</sub>-C<sub>14</sub>) alkylamines or the N-acylaminopropylmorpholine oxides. It will be noted that alkylpolyglycosides constitute nonionic surfactants which are particularly well suited within the context of the present invention.

(iii) Amphoteric surfactant(s):

The amphoteric surfactants, the nature of which is not of critical importance in the context of the present invention, may be especially (nonlimiting list) derivatives of aliphatic secondary or tertiary amines in which the aliphatic radical is a linear or branched chain containing 8 to 22 carbon atoms and containing at least one water-solubilizing anionic group (for example carboxylate, sulfonate, sulfate, phosphate or phosphonate); (C<sub>8</sub>-C<sub>20</sub>)alkylbetaines, sulfobetaines, (C<sub>8</sub>-C<sub>20</sub>)alkylamido(C<sub>1</sub>-C<sub>6</sub>)alkylbetaines or (C<sub>8</sub>-C<sub>20</sub>)alkylamido(C<sub>1</sub>-C<sub>6</sub>)alkylsulfobetaines may further be mentioned.

Among the amine derivatives there may be mentioned the products sold under the name Miranol, as described in patents US-2 528 378 and US-2 781 354 and of structures:



in which:  $R_2$  denotes an alkyl radical derived from an acid  $R_2\text{-COOH}$  present in hydrolyzed copra oil, a heptyl, nonyl or undecyl radical,  $R_3$  denotes a beta-hydroxyethyl group and  $R_4$  a carboxymethyl group;

10 and



in which:

B represents  $-\text{CH}_2\text{CH}_2\text{OX}'$ , C represents  $-(\text{CH}_2)_z - \text{Y}'$ , with  $z = 1$  or  $2$ ,

15  $X'$  denotes the group  $-\text{CH}_2\text{CH}_2\text{-COOH}$  or a hydrogen atom

$Y'$  denotes  $-\text{COOH}$  or the radical  $-\text{CH}_2\text{-CHOH-SO}_3\text{H}$

$R_5$  denotes an alkyl radical of an acid  $R_5\text{-COOH}$  present in copra oil or in hydrolyzed linseed oil, an alkyl radical, especially  $C_7$ ,  $C_9$ ,  $C_{11}$  or  $C_{13}$ , a  $C_{17}$  alkyl radical

20 and its iso form or an unsaturated radical  $C_{17}$ .

These compounds are classified in the CTFA dictionary, 5th edition, 1993, under the names Disodium Cocoamphodiacetate, Disodium Lauroamphodiacetate, Disodium Caprylamphodiacetate, Disodium

25 Capryloamphodiacetate, Disodium Cocoamphodipropionate, Disodium Lauroamphodipropionate, Disodium Caprylampho-

dipropionate, Disodium Capryloamphodipropionate, Lauro-amphodipropionic acid, Cocoamphodipropionic acid.

By way of example, there may be mentioned the cocoamphodiacetate marketed under the trade name

5 MIRANOL C2M concentrate by the company RHONE POULENC.

In the compositions in accordance with the invention, there are preferably used mixtures of surfactants and in particular mixtures of anionic surfactants and mixtures of anionic surfactants and of  
10 amphoteric or nonionic surfactants. A particularly preferred mixture is a mixture consisting of at least one anionic surfactant and at least one amphoteric surfactant.

An anionic surfactant is preferably used which  
15 is chosen from sodium, triethanolamine or ammonium (C<sub>12</sub>-C<sub>14</sub>)alkyl sulfates, oxyethylenated sodium, triethanolamine or ammonium (C<sub>12</sub>-C<sub>14</sub>)alkyl ether sulfates containing 2.2 mol of ethylene oxide, sodium cocoyl isethionate and sodium (C<sub>14</sub>-C<sub>16</sub>)alphaolefin sulfonate and  
20 their mixtures with:

- either an amphoteric surfactant such as the amine derivatives called disodium cocoamphodipropionate or sodium cocoamphopropionate marketed in particular by the company RHONE POULENC under the trade name "MIRANOL C2M  
25 CONC" in aqueous solution at 38% of active material and under the name MIRANOL C32;

- or an amphoteric surfactant of the zwitterionic type such as the alkylbetaines, in particular the cocobetaine marketed under the name "DEHYTON AB 30" in aqueous solution at 32% AS by the company HENKEL.

5           It is also possible to use cationic surfactants among which there may be mentioned in particular (nonlimiting list): salts of primary, secondary or tertiary fatty amines, optionally polyoxyalkylenated; quaternary ammonium salts such as  
10 tetraalkylammonium, alkylamidoalkyltrialkylammonium, trialkylbenzylammonium, trialkylhydroxyalkylammonium or alkylpyridinium chlorides or bromides; imidazoline derivatives; or oxides of amines with a cationic character.

15           The composition of the invention may also contain at least one additive chosen from thickeners, perfumes, pearlescent agents, preservatives, sunscreens, anionic or nonionic or cationic or amphoteric polymers, proteins, protein hydrolysates,  
20 linear or branched chain C<sub>16</sub>-C<sub>40</sub> fatty acids such as 18-methyleicosanoic acid hydroxy acids, vitamins, panthenol, vegetable, animal, mineral or synthetic oils and any other additive conventionally used in the cosmetic field which does not affect the properties of  
25 the compositions according to the invention.

          These additives are present in the composition according to the invention in proportions



which may range from 0 to 50% ~~by weight~~ by weight relative to the total weight of the composition. The precise quantity of each additive can be easily determined by persons skilled in the art according to its nature and its  
5 function.

The cosmetically acceptable medium may consist solely of water or of a mixture of water and at least one cosmetically acceptable solvent such as monoalcohols, polyalcohols, glycol ethers and mixtures  
10 thereof. The monoalcohols are in particular chosen from C<sub>1</sub>-C<sub>4</sub> lower alcohols such as ethanol, isopropanol, tert-butanol, n-butanol; alkylene glycols such as propylene glycol, glycol ethers and mixtures thereof.

Preferably, the composition comprises from 50  
15 to 95% by weight of water relative to the total weight of the composition.

The pH of the compositions is generally between 2 and 12 and preferably between 4 and 9. The pH may be conventionally adjusted to the desired value by  
20 adding a base (organic or inorganic base) to the composition, for example aqueous ammonia or a primary, secondary or tertiary (poly)amine such as monoethanolamine, diethanolamine, triethanolamine, isopropanolamine or 1,3-propanediamine, or by adding an  
25 inorganic or organic acid, preferably a carboxylic acid such as for example citric acid.

The compositions in accordance with the invention may be more particularly used for the washing or treatment of keratinous materials such as the hair, skin, eyelashes, eyebrows, nails, lips, scalp and more particularly the hair.

In particular, the compositions according to the invention are detergent compositions such as shampoos, shower gels and foam baths. In this embodiment of the invention, the compositions comprise a generally aqueous washing base.

The surfactant(s) forming the washing base may equally well be chosen, alone or as mixtures, from anionic, amphoteric, nonionic and cationic surfactants as defined above.

The quantity and the quality of the washing base are those sufficient to confer on the final composition a satisfactory foaming and/or detergent power.

Thus, according to the invention, the washing base may represent from 4% to 50% by weight, preferably from 6% to 35% by weight, and still more preferably from 8% to 25% by weight, of the total weight of the final composition.

The subject of the invention is also a method of treating keratinous materials such as the skin or the hair, characterized in that it consists in applying to the keratinous materials a cosmetic composition as

defined above, and then in optionally carrying out a rinsing with water.

Thus, this method according to the invention allows the retention of the hairstyle, the treatment,  
5 the care or the washing of or the removal of make-up from the skin, the hair or any other keratinous material.

The compositions of the invention may also be provided in the form of a hair conditioner to be rinsed  
10 out or otherwise, of compositions for permanent waving, straightening, dyeing or bleaching the hair, or alternatively in the form of rinse-out compositions to be applied before or after dyeing, bleaching, permanent waving or hair straightening or alternatively between  
15 the two stages of permanent waving or hair straightening.

The compositions according to the invention may be used as leave-in products, in particular for holding the hairstyle, for shaping the hair or for hair  
20 styling.

They are more particularly hair setting lotions, blow drying lotions, fixing compositions (lacquers) and hair styling compositions.

The compositions of the invention may also be  
25 provided in the form of washing compositions for the skin, and in particular in the form of bath or shower solutions or gels or of make-up-removing products.

The compositions according to the invention may also be provided in the form of aqueous or aqueous-alcoholic lotions for skin and/or hair care.

The cosmetic compositions according to the invention may be provided in the form of a gel, milk, cream, lotion, stick, emulsion, thickened lotion or mousse and may be used for the skin, nails, eyelashes, lips and more particularly the hair.

The compositions may be packaged in various forms, in particular in vaporizers, pump dispensers or in aerosol containers in order to allow application of the composition in vaporized form or in mousse form. Such forms of packaging are advisable, for example, when it is desired to obtain a spray, a lacquer or a mousse for treating the hair.

When the composition according to the invention is packaged in aerosol form so as to obtain a lacquer or an aerosol mousse, it comprises at least one propellant which may be chosen from volatile hydrocarbons such as n-butane, propane, isobutane, pentane, a chlorinated and/or fluorinated hydrocarbon and mixtures thereof. It is also possible to use, as propellant, carbon dioxide gas, nitrous oxide, dimethyl ether, nitrogen, compressed air and mixtures thereof.

In the text which follows or in the preceding text, the percentages expressed are by weight.

The invention will now be illustrated more fully with the aid of the following examples which should not be considered as limiting it to the embodiments described.

5 In the examples, AS means active substance.

**EXAMPLE 1**

The following 4 blow-drying compositions were prepared:

	1 Inven Tion	2 Com- parative	3 Com- parative	4 Com- parative
- N-Oleoyldihydro-sphingosine (ceramide)	0.1 g	-	0.5 g	-
- Hydrogenated sunflower wax (Laboratoire SOETENAEY)	0.4 g	0.5 g	-	-
- Behenyl trimethyl ammonium chloride	2 g AS	2 g AS	2 g AS	2.5 g AS
- Water qs	100 g	100 g	100 g	100 g

1 g of composition is applied to hair locks  
 10 (2.7 g) which have been previously washed and wrung. It is allowed to act for 5 minutes, the locks are combed and then they are rinsed with water.

Lock to lock sliding on wet hair

A movable lock, attached to a sliding bench, is caused to move in a horizontal rectilinear manner between two other fixed locks. The force to be exerted to cause the lock to slide is measured with the aid of an electronic gauge linked to a driving arm. The lower the sliding force, the better the cosmetic properties.

The results are assembled in the tables below:

Compositions tested	1 Invention	2 Com- parative	3 Com- parative	4 Com- parative
Sliding force	24.7 g	34.4 g	34.4 g	41.4 g

10 The sliding force for composition 1 according to the invention is markedly less than that for compositions 2, 3 and 4.

The composition containing both the ceramide and the sunflower wax therefore exhibits better  
15 cosmetic properties than those containing only one of the two compounds.

**Blow drying test:**

1 g of composition is applied to hair locks (2.7 g) which have been previously washed and wrung. It is allowed to act for 5 minutes, the locks are combed and then they are rinsed with water.

Blow drying is performed using a brush and a hair dryer. The blow drying is carried out by passing the brush from the root to the tip. The broken hair is meticulously recovered on the brush using a comb and then weighed. The mass of hair recovered for a lock is expressed relative to the mass of hair recovered for one gram of hair at the start.

The mass of hair recovered is compared for each of the compositions 1 to 4. The higher the mass of broken hair, the less the composition protects the hair.

The results are assembled in the tables below:

Compositions tested	1 Invention	2 Com- parative	3 Com- parative	4 Com- parative
Mass of hair recovered on the brush after blow drying	8.7 mg/g	12.1 mg/g	13.1 mg/g	17.5 mg/g

It is observed that the mass of hair recovered on the brush after blow drying is markedly reduced (-28%) for the composition according to the invention 1 containing both the ceramide and the  
5 sunflower wax.

## EXAMPLE 2

The following shampoo composition was prepared:

Lauryl ether sulfate containing 2.2 mol of ethylene oxide in aqueous solution containing 70% AS	15 g AS
Cocoyl betaine containing 30% AS	2.5 g AS
Quaternized guar gum (Jaguar C 13S from RHODIA CHIMIE)	0.05 g
PDMS of viscosity 300 000 cSt	2.7 g
Cetyl 2-hydroxycetylstearyl ether/cetyl alcohol	2.5 g
Copra acid monoisopropanilamide	1 g
Hydrogenated sunflower wax (Laboratoire SOETENAEY)	0.5 g
N-Oleoyldihydrosphingosine	0.01 g
Preservative qs	
Perfume qs	
Water qs	100 g

Hair treated with this composition exhibits  
10 very good cosmetic properties.



**EXAMPLE 3**

A rinse-out conditioner having the following composition was prepared:

Cetylstearyl alcohol (50/50 by weight)	5 g
Myristyl, cetyl and stearyl myristate, palmitate and stearate mixture	1 g
Behenyltrimethylammonium chloride containing 80% AS (GENAMIN KDMP from CLARIANT)	3.2 g AS
Polydimethyl siloxane with amino ethyl iminopropyl groups as a cationic emulsion (35% AS in water)	1.05 g AS
Glycerine	3 g
Hydrogenated sunflower wax	0.5 g
N-Oleoyldihydrosphingosine	0.1 g
Preservative qs	
Perfume qs	
Water qs	100 g

**EXAMPLE 4**

5 A rinse-out conditioner having the following composition was prepared:

N-(2-Hydroxyhexadecanoyl)-2-aminoocta-Decane-1,3-diol	0.1 g
Hydrogenated sunflower wax	0.4 g
Behenyltrimethylammonium chloride containing 80% AS (GENAMIN KDMP from CLARIANT)	1.6 g AS

Water qs 100 g

**EXAMPLE 5**

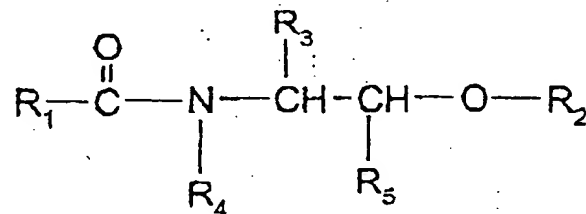
A rinse-out conditioner having the following composition was prepared:

Cetylstearyl alcohol (50/50 by weight)	6 g
Behenyltrimethylammonium chloride containing 80% AS (GENAMIN KDMP from CLARIANT)	4 g AS
Polydimethyl siloxane with amino ethyl iminopropyl groups as a cationic emulsion (35% AS in water)	0.7 g AS
Glycerine	3 g
Hydrogenated sunflower wax	2 g
N-Oleoyldihydrosphingosine	0.1 g
Preservative qs	
Water qs	100 g

## CLAIMS

1. Cosmetic composition, characterized in that it contains, in a cosmetically acceptable medium, at least one wax having a melting point of between 70  
5 and 85°C and in which at least 80% of the carbon chains possess more than 40 carbon atoms, and at least one ceramide-type compound.

2. Composition according to Claim 1, characterized in that the ceramide-type compound  
10 corresponds to the general formula (I):



in which:

- R<sub>1</sub> denotes:

- either a saturated or unsaturated, linear  
15 or branched, C<sub>1</sub>-C<sub>50</sub>, preferably C<sub>5</sub>-C<sub>50</sub>, hydrocarbon radical, it being possible for this radical to be substituted with one or more hydroxyl groups optionally esterified by an acid R<sub>7</sub>COOH, R<sub>7</sub> being an optionally  
mono- or polyhydroxylated, linear or branched,  
20 saturated or unsaturated, C<sub>1</sub>-C<sub>35</sub> hydrocarbon radical, it being possible for the hydroxyl(s) of the R<sub>7</sub> radical to be esterified by an optionally mono- or  
polyhydroxylated, linear or branched, saturated or  
unsaturated, C<sub>1</sub>-C<sub>35</sub> fatty acid;

- or a radical  $R''-(NR-CO)-R'$ , R denotes a hydrogen atom or a mono- or polyhydroxylated, preferably monohydroxylated,  $C_1-C_{20}$  hydrocarbon radical,  $R'$  and  $R''$  are hydrocarbon radicals of which the sum of the carbon atoms is between 9 and 30,  $R'$  being a divalent radical;

- or a radical  $R_8-O-CO-(CH_2)_p$ ,  $R_8$  denotes a  $C_1-C_{20}$  hydrocarbon radical, p is an integer varying from 1 to 12;

10 -  $R_2$  is chosen from a hydrogen atom, a saccharide-type radical, in particular a (glycosyl) $_n$ , (galactosyl) $_m$  or sulfogalactosyl radical, a sulfate or phosphate residue, a phosphorylethylamine radical and a phosphorylethylammonium radical, in which n is an integer varying from 1 to 4 and m is an integer varying from 1 to 8;

-  $R_3$  denotes a hydrogen atom or a hydroxylated or nonhydroxylated, saturated or unsaturated,  $C_1-C_{33}$  hydrocarbon radical, it being possible for the hydroxyl(s) to be esterified by an inorganic acid or an acid  $R_7COOH$ ,  $R_7$  having the same meanings as above, it being possible for the hydroxyl(s) to be etherified by a (glycosyl) $_n$ , (galactosyl) $_m$ , sulfogalactosyl, phosphorylethylamine or phosphorylethylammonium radical, it being also possible for  $R_3$  to be substituted with one or more  $C_1-C_{14}$  alkyl radicals;

preferably,  $R_3$  denotes a  $C_{15}$ - $C_{26}$   $\alpha$ -hydroxyalkyl radical, the hydroxyl group being optionally esterified by a  $C_{16}$ - $C_{30}$   $\alpha$ -hydroxy acid;

- $R_4$  denotes a hydrogen atom, a methyl or ethyl radical,
    - 5 an optionally hydroxylated, linear or branched, saturated or unsaturated,  $C_3$ - $C_{50}$  hydrocarbon radical, a radical  $-\text{CH}_2-\text{CHOH}-\text{CH}_2-\text{O}-R_6$  in which  $R_6$  denotes a  $C_{10}$ - $C_{26}$  hydrocarbon radical or a radical  $R_8-\text{O}-\text{CO}-(\text{CH}_2)_p$ ,  $R_8$  denotes a  $C_1$ - $C_{20}$  hydrocarbon radical,  $p$  is an integer
      - 10 varying from 1 to 12;
  - $R_5$  denotes a hydrogen atom or an optionally mono- or polyhydroxylated, linear or branched, saturated or unsaturated,  $C_1$ - $C_{30}$  hydrocarbon radical, it being possible for the hydroxyl(s) to be etherified by a
    - 15 (glycosyl) $_n$ , (galactosyl) $_m$ , sulfogalactosyl, phosphorylethylamine or phosphorylethylammonium radical;
- with the proviso that when  $R_3$  and  $R_5$  denote hydrogen or when  $R_3$  denotes hydrogen and  $R_5$  denotes methyl, then  $R_4$ 
  - 20 does not denote a hydrogen atom, or a methyl or ethyl radical.

3. Composition according to any one of the preceding claims, characterized in that the ceramide-type compound is chosen from the group consisting of:

- 25 - 2-(N-linoleoylamino)-1,3-octadecanediol,
- 2-(N-oleoylamino)-1,3-octadecanediol,
- 2-(N-palmitoylamino)-1,3-octadecanediol,

- 2-(N-stearoylamino)-1,3-octadecanediol,
- 2-(N-behenoylamino)-1,3-octadecanediol,
- 2-[N-(2-hydroxypalmitoyl)amino]-1,3-octadecanediol,

5       - 2-(N-stearoylamino)-1,3,4-octadecanetriol,  
      - 2-(N-palmitoylamino)-1,3-hexadecanediol,

or mixtures of these compounds.

4. Composition according to either of Claims 1 and 2, characterized in that the ceramide-type  
10 compound is chosen from bis(N-hydroxyethyl-N-cetyl)malonamide, cetylic acid N-(2-hydroxyethyl)-N-(3-cetyloxy-2-hydroxypropyl)amide and N-docosanoyl-N-methyl-D-glucamine.

5. Composition according to any one of the  
15 preceding claims, characterized in that the ceramide-type compound(s) are present in concentrations ranging from 0.0001 to 20% by weight relative to the total weight of the composition and preferably from 0.001 to 10% by weight and more preferably between 0.005 and 3%  
20 by weight.

6. Composition according to any one of the preceding claims, characterized in that said wax contains at least 80% of carbon chains comprising from 40 to 65 carbon atoms.

25       7. Composition according to any one of the preceding claims, characterized in that said wax is present in concentrations ranging from 0.0001 to 20% by

weight relative to the total weight of the composition and preferably from 0.001 to 10% by weight and more preferably between 0.005 and 3% by weight.

8. Composition according to any one of the  
5 preceding claims, characterized in that it comprises, in addition, at least one surfactant chosen from anionic, cationic, nonionic and amphoteric surfactants and mixtures thereof.

9. Composition according to Claim 8,  
10 characterized in that the surfactant(s) are present at a concentration of between 0.1% and 60% by weight, preferably between 3% and 40% by weight, and more preferably still between 5% and 30% by weight, relative to the total weight of the composition.

15 10. Composition according to any one of the preceding claims, characterized in that the cosmetically acceptable medium consists of water or of a mixture of water and at least one cosmetically acceptable solvent.

20 11. Composition according to Claim 10, characterized in that the cosmetically acceptable solvents are chosen from the group consisting of monoalcohols, polyalcohols, glycol ethers and mixtures thereof.

25 12. Composition according to any one of the preceding claims, characterized in that it is provided

in the form of a gel, milk, lotion, stick, cream, dispersion, thickened lotion or mousse.

13. Composition according to any one of the preceding claims, characterized in that it is a product  
5 for hair styling, for holding the hairstyle or for shaping the hair.

14. Composition according to any one of the preceding claims, characterized in that it is packaged in the form of a vaporizer, a pump dispenser or an  
10 aerosol container so as to obtain a spray, a lacquer or a mousse.

15. Composition according to any one of Claims 1 to 14, characterized in that it comprises, in addition, at least one additive chosen from thickeners,  
15 perfumes, pearlescent agents, preservatives, sunscreens, anionic or nonionic or cationic or amphoteric polymers, proteins, protein hydrolyzates, linear or branched chain C<sub>16</sub>-C<sub>40</sub> fatty acids such as 18-methyleicosanoic acid, hydroxy acids, vitamins,  
20 panthenol and fatty esters.

16. Composition according to any one of Claims 1 to 15, characterized in that it is provided in the form of a shampoo, conditioner, composition for permanent waving, straightening, dyeing or bleaching  
25 the hair, rinse-out composition to be applied between the two stages of permanent waving or hair straightening, or washing composition for the skin.



17. Use of a composition as defined in any one of Claims 1 to 16 for the washing of keratinous materials such as hair.

18. Method for treating keratinous materials, such as hair, characterized in that it consists in applying to said materials a cosmetic composition according to one of Claims 1 to 16, and then in optionally rinsing with water.

19. Use of a composition as defined according to any one of Claims 1 to 16 for protecting keratinous materials, in particular hair, from physical or chemical attacks.

20. Use of a composition as defined according to any one of Claims 1 to 16 for protecting the hair during blow drying.